A NEW SPECIES OF *PSEUDOSINELLA* FROM CHINA (COLLEMBOLA: ENTOMOBRYIDAE)[1]

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ABSTRACT: A new species of the *Pseudosinella violenta* group is described. The genus *Pseudosinella* is one of the largest and most widespread of Collembola genera; however only a single species (*P. tridentifera* Rusek 1971) has been reported from China. A new Chinese species is here described from Tibet, China.

The genus *Pseudosinella* is one of the largest and most widespread genera in Collembola, thus far, about 280 species have been described in the world; however, only a single species (*P. tridentifera* Rusek, 1971) has been reported from China (Xinhui, Guangzhou, Guangdong). Here, in the first of a series of papers, we describe another species, this one from Tibet, China.

Pseudosinella bellingeri, NEW SPECIES

(Figs. 1-14)

Maximum body length 1.5mm.

Color: white to pale yellow. Scales hyaline, oval to circular, and absent from antennae and legs.

Head: Eyes absent (Fig.2). Antennae 1.0-1.44 times as long as cephalic diagonal, Ant.IV lacking apical bulb; Ant.III organ not clearly seen. The measurements of antennal segments as shown in Table 1. Labral papillae weakly developed. Labral intrusion V shaped. Basal seta of labial palp slightly longer than or subequal to apical and with 3 smooth sublobal hairs. External differentiated seta of labial appendage well developed, straight, thicker than normal setae, tip exceeding apex of same papilla by 0.36-0.50 of its length. Labral setae 4-5-5-4, all smooth, prelabral setae slender, smooth to slightly ciliate.

Chaetotaxy: Body macrochaetae: 00/0201+2 (Fig.1), cephalic and abdominal chaetotaxy as shown in Table 2 & Figs. 1, 2, 5 & 6. Thoracic "collar" of 3-4 rows of heavy truncate setae. Chaetotaxy of labium base: $M_1M_20EL_1L_2$, seta R absent, setae all smooth (Fig.3). Marginal macrochaetae along cephalic labial ventral groove 4s0c or 4s1c or 3s0c. Abd.II without P seta; anterior bothriotricha complex of Abd.IV without a supplementary seta.

Legs: Trochanteral organ with 12 setae, all smooth (Fig.6). Inner differentiated seta of tibiotarsus very slightly ciliate. Tibiotarsus outstanding inner macrochaetae usually 1 (rarely 2) on each leg, if 1, located at about 0.33-0.38 distance from apex, if 2, respectively at 0.20-0.27 and 0.30-0.42 distance from base to apex, mostly slightly tapered and acuminate only at extreme tip (Fig.7), some slightly ciliate and acuminate, only slightly longer than other large setae and barely distinguishable from other large setae. Unguis with 4 clear teeth, basal paired unequal with outer one large and wing-like with tip reaching 0.27-0.50 distance from base to apex of inner unguis, median 2 respectively at 0.54-0.68 and 0.73-0.84 distance from base to apex of unguis, distal one small. Unguiculus acuminate with large outer tooth. Tenent hair generally clavate but occasionally weakly truncate, shorter than inner edge of unguis (Fig.8).

Ventral Tube: With 6-12 (mostly 8) large ciliate setae on anterior face (Fig.9), 6-8 smooth setae on posterior (Fig.10), and 5-7 (mostly 7) smooth setae on each lateral flap (Fig.11).

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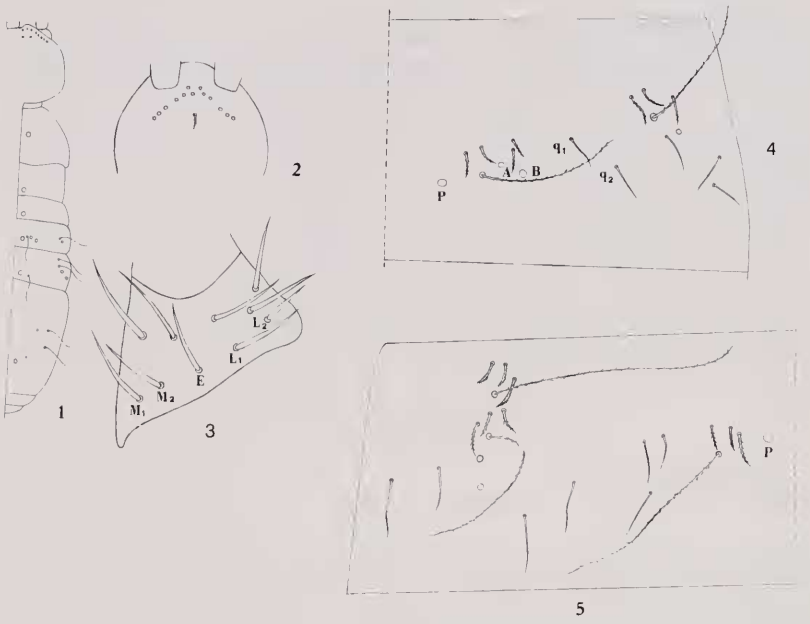
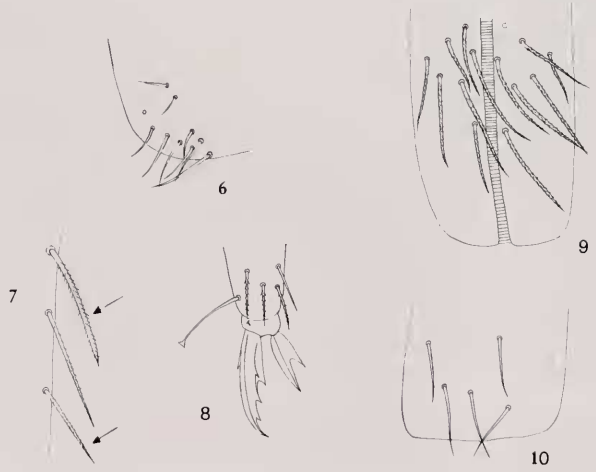


Figs. 1-5. *Pseudosinella bellingeri*, sp. nov. 1. semi-diagrammatic dorsal chaetotaxy; 2. semi-diagrammatic cephalic chaetotaxy; 3. labial triangle; 4. chaetotaxy of Abd.II; 5. chaetotaxy of Abd.III.



Figs. 6-10. *Pseudosinella bellingeri*, sp. nov. 6. trochanteral organ; 7. inner differentiated tibio-tarsal setae; 8. hind foot complex; 9. anterior face of ventral tube; 10. posterior face of ventral tube.

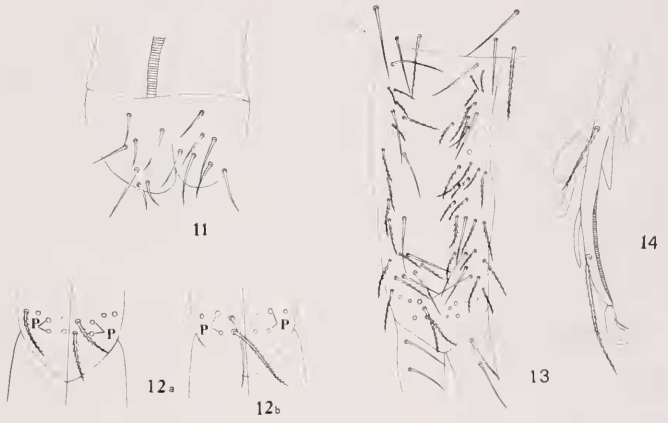
Furcula: Manubrial plaque with 2 inner and 2 (rarely 1) outer ciliate setae (Fig.12a), inner setae sometimes 1 smooth, 1 ciliate (Fig.12b). 7-8 long, straight smooth setae on each side of manubrium dorsum, 2 also on each side at end of Abd.VI, and 2 at base of dens on each side (Fig.13). Uncrenulate dens 3.44-4.0 times length of mucro. Mucro with subapical tooth slightly smaller than apical one, basal spine just attaining apex of subapical tooth (Fig.14).

Male genital plate unseen.

Types: Holotype female and paratypes 9 females, 1 male. P. R. China: Tibet: town of Qusong County, alt. 4,100m, 1 June 1997; Tibet: town of Jiacha County, alt. 3,200m, 28 June 1997, in soil and litter, collection number 8658, coll. by Wu Ming. Deposited in Department of Biology, Nanjing University, China.

Ecology: unknown.

Etymology: Named after Peter Bellinger, whose help was invaluable to us in the early stages of this work.



Figs. 11-15. *Pseudosinella bellingeri*, sp. nov. 11. lateral flap of ventral tube; 12. variants of inner setae of manubrial plaque; 13. dorsal side of manubrium; 14. apex of dens and mucro.

Remarks: There is considerable variation in the relative lengths of the antennal segments (Table 1). The inner differentiated 3rd tibiotarsal setae vary in number (see figure 7) and position (see above). The setae of the ventral tube vary within a narrow range (see above). The tenent hair varies from clavate to truncate. The new species differs from *P. tridentifera* by the absence of eyes and the totally different foot complex and labial triangle. *P. bellingeri* is one of a small cluster of species which includes *P. ashmoleorum* Gama, *P. gamae* Gisin, *P. rolfsi* Mills & *P. violenta* Folsom, characterized by having smooth labial setae, no eyes, and a clear wing tooth on the unguiculus. It differs from *violenta* in lacking the unusual ciliate macrochaeta q1 on the second abdominal segment as well as having 2 rather than 1 inner manubrial plaque setae and having one or two clearly differentiated 3rd tibiotarsal setae. It differs from *ashmoleorum* in lacking the labial triangle seta r, the tenent hair shape, and lacking the seta p on the Abd.II. It differs from *gamae* in lacking the labial seta r, having the seta P on the Abd. IV and having 2 inner manubrial plaque setae. It differs from *rolfsi* in having long truncate or clavate thoracic collar setae rather than the peculiar short acuminate setae characteristic of that species. It also has 1 - 2 outer manubrial plaque setae rather than the 7-8 found in *rolfsi.* It differs from all these species in having 4 inner ungual teeth and straight smooth seta on dorsal manubrium whereas the other 4 species have 3 or (rarely) 2 inner teeth. The details of the important features of species of this group are shown in Table 2

Table 1. Measurements (in mm) of *Pseudosinella bellingeri,* sp. nov.

Specimen	C.D.	Ant. I	Ant. II	Ant. III	Ant. IV.	Antennal segment ratios(I:II:III:IV)
8658-16	.243	.033	.088	.090	.143	1-2.67-2.73-4.33
8658-4	.250	.028	.090	.084	.155	1-3.21-3.0-5.54
8658-12	.283	.030	.080	.045	.115	1-2.67-1.50-3.83
8658-2	.338	.040	.105	.108	.190	1-2.63-2.70-4.75
8658-10	.255	.040	.088	.080	.135	1-2.2-2.0-3.38

C.D. = cephalic diagonal

Table 2. Taxonomic characters and states for *Pseudosinella bellingeri* and related species.

See Christiansen, Bellinger and Gama 1990 for description of characters and character states.

SPECIES	character number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
bellingeri	character state	1	1	3	3	5	3	3	3	4	4	1	1	1	4	0	3	0	2	2	1
ashmole-orum	character state	1	1	3	3	1	3	3	3	4	4	1	1	1	2	1	3	0	1	1	1
gamae	character state	1	1	3	3	1	3	3	3	4	4	2	4	1	4	0	3	0	1	2	2
rolfsi	character state	1	1	3	3	5	3	3	3	1	3	2	3	1	4	0	3	0	1	1/2	1
violenta	character state	1	1	3	3	5	3	3	3	3	3	2	3	1	4	0	3	0	1	2	2

	character number	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
bellingeri	character state	2	3	2	1	1	0	2	1-2	2	6	3	1-2	1.5	50-80	.7-1.4	2	2	1	1	1
ashmole-orum	character state	1	1/2	2	4	3	0	-	-	1	1	-	1	2.2	-	1.8-2.1		2	2	2	1
gamae	character state	2	2	2	4	3	0	1	12	2	1	-	1	2.5	60	1.6	-	2	1	1	1
rolfsi	character state	2	2	2	4	1	0	2	7-8	2	2	1	1	2	55	1.3	1	2	1	1	1
violenta	character state	2/1	2/1	1/2	4	1	0	1	1-3	3	2/3	1	2	2.1	63-78	1.2-2.1	1	2	1	1	1

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